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American Woods

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Red Alder

Forest Service
U. S. DEPARTMENT OF AGRICULTURE

entirely. These temporary stands of red alder on cut-over and burned-over areas enrich the impoverished soil by humus-producing leaves and nitrogen-producing roots, thus bringing about a condition favorable to another stand of conifers.

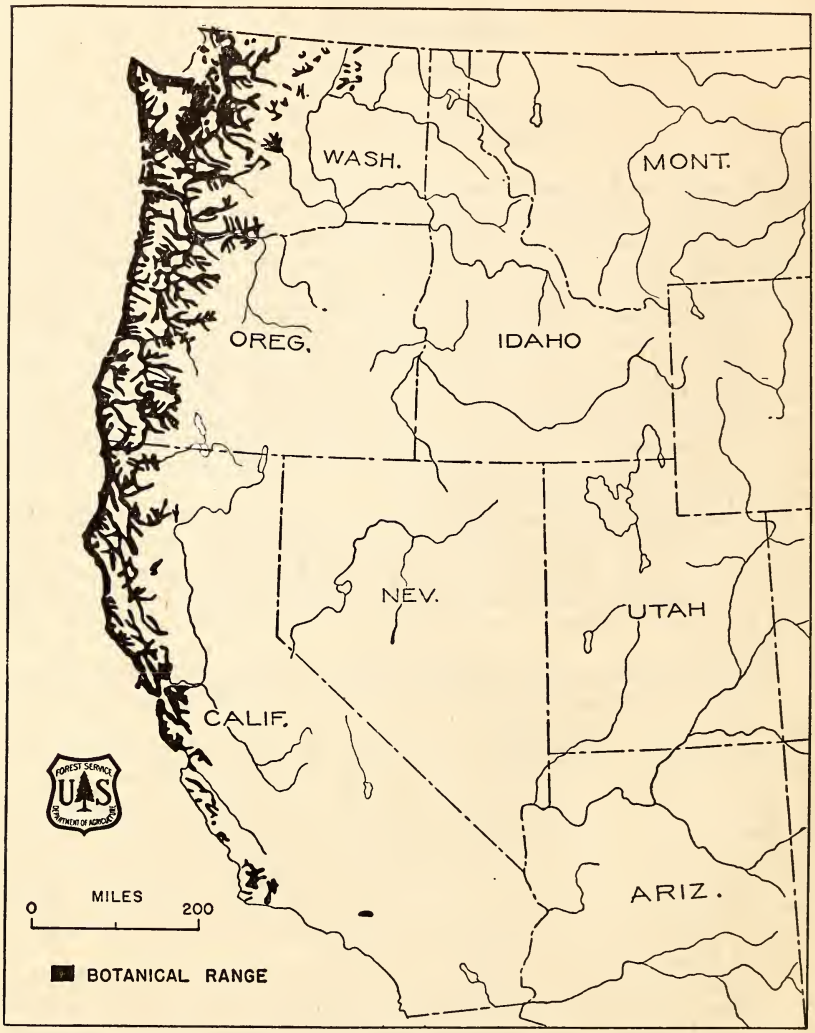

FIGURE 1.—Range of red alder (Alnus rubra) in continental United States.

Red alder matures in about 50 years and is considered old at 80 years. Conditions best suited to its development are found in Washington and Oregon. Here mature forest trees are generally from 80 to 100 feet in height and from 14 to 18 inches in diameter. Trees growing in the open sometimes attain a height of 120 feet and a diameter of 4 feet. Following are average measurements of 115 typical trees

of various ages in the Puget Sound region of Washington: Age 25 years—height 75 feet, diameter 10.2 inches; age 35 years—height 85.8 feet, diameter 11.9 inches; age 50 years—height 97.5 feet, diameter 16 inches.

Red alder trees are subject to attack by the false-tinder fungus (*Fomes igniarius*) which causes heart rot. This fungus, however, does little damage to trees until they are over 50 years old. Damage from fire is also slight on account of the damp conditions under which red alder ordinarily grows.

Supply.—The stand of red alder of merchantable size in Oregon and Washington was conservatively estimated at 1,100,000,000 board feet in 1926.[1] Of this amount, 750,000,000 board feet, occupying 75,000 acres, was in Oregon and 360,000,000 board feet, occupying 30,000 acres, was in Washington. A recent forest survey [2] gives the stand of red alder in Oregon as 1,871,000,000 board feet and that in Washington as 692,000,000 board feet, making a total of 2,563,000,000 board feet for Oregon and Washington. No forest-survey figures are available covering the stand of red alder in California. If this stand is estimated at 75,000,000 board feet,[3] then the total stand of red alder in the United States would be close to 2,640,000,000 board feet.

Production.—The production of red alder lumber was first recorded separately in 1907, when the cut recorded was only 150,000 board feet. It remained very small for the next 20 years. (See fig. 2.) After that it increased considerably, but was very irregular. The average annual cut for the 10-year period 1933–42 was approximately 25,000,000 board feet.[4] The maximum cut, approximately 34,000,000 board feet, occurred in 1936 and the minimum, approximately 9,000,000 board feet, in 1932. The cut in 1942 dropped to about 14,500,000 board feet and in 1943 to 10,628,000, which is the smallest since 1932. Washington has been the leading State in the production of red alder lumber and Oregon has been second. Very small amounts are occasionally reported cut in California.

Properties.—There is no visible distinction between the sapwood and heartwood of red alder. Both are nearly white in color on freshly cut surfaces and both turn to a light reddish brown shortly after exposure and later, when fully seasoned, to a pale yellow. The wood is generally close and uniform in texture, and the grain straight. It is reported as easy to work with tools. The annual rings are made up of comparatively wide bands of springwood and narrow bands of summerwood, the latter showing as fine lines in a radial section.

The wood is moderately light in weight,[5] moderately strong in bending (as in a beam), moderately strong in compression (as in a post), moderately stiff, moderately soft, and moderately low in ability

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[1] See JOHNSON, H. M., HANZLIK, E. D., and GIBBONS, W. H. RED ALDER IN THE PACIFIC NORTHWEST. U. S. Dept. Agr. Bul. 1437, 46 pp., illus. 1926.

[2] See ANDREWS, H. J., and COWLIN, R. W. FOREST RESOURCES OF THE DOUGLAS-FIR REGION. U. S. Dept. Agr. Misc. Pub. 389, 169 pp., illus. 1940.

[3] The estimate for the stand of red alder in California is based on the assumption that this stand bears the same relation to the production of red alder lumber in California that the stand in Oregon and Washington bears to the production of red alder lumber in those two States.

[4] It is probable that this figure and other production figures for red alder are smaller than they should be, partly because of the difficulty of obtaining a complete and accurate record of the lumber production of a species cut in comparatively small quantities by small portable mills.

[5] The average weight of red alder in a thoroughly air-dry condition (12 percent moisture) is 28 pounds per cubic foot.

to resist shock. It has little tendency to split in nailing and has moderate nail-holding ability. The wood can be glued satisfactorily, provided moderate care is used in the gluing operation. It takes and holds paint and enamel satisfactorily. Red alder has a moderately large shrinkage but can be kiln-dried with small losses from warping, cupping, checking, etc., if the proper drying schedules are used. In decay resistance the wood ranks with aspen and white fir in the lowest of five classes of woods arranged in order of durability. The green lumber is especially susceptible to attack by decay-producing organisms, and it is necessary to open-pile such lumber promptly, if it is to await kiln-drying, in order to avoid deterioration.

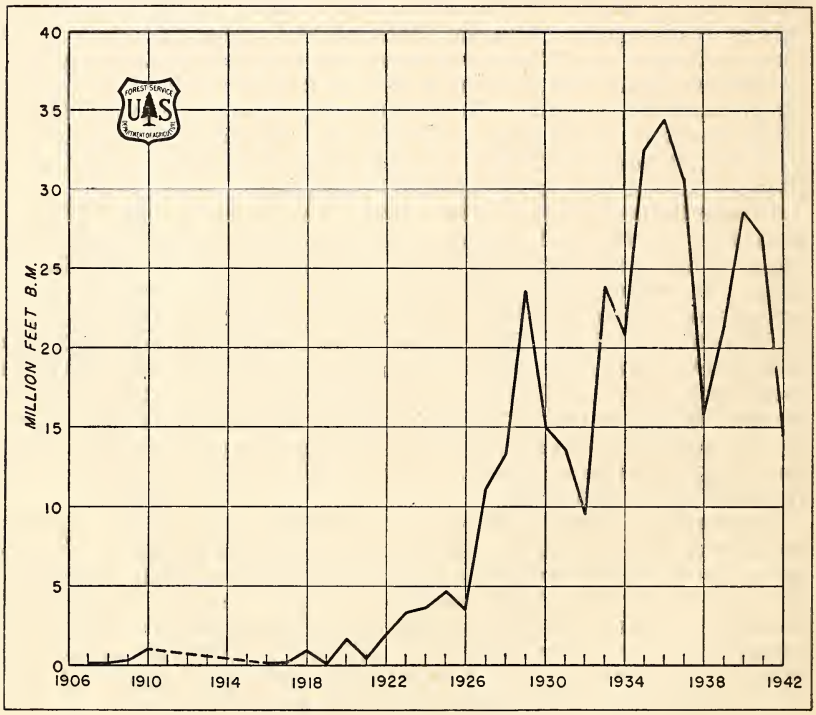

FIGURE 2.—Lumber production of red alder (*Alnus rubra*), 1907–42.

Principal uses.—The outstanding use for red alder is for furniture (including chairs). Nearly 99 percent of the wood that was manufactured into wooden products in recent years went into this use. Red alder has proved very satisfactory for enameled furniture, for the cores of panels faced with the more expensive cabinet woods such as mahogany and black walnut, for the turned parts of low-priced chairs, and for drawer sides, bottoms, and ends. Besides being used for furniture, red alder is used in small quantities for fixtures, general millwork, and handles. The wood has also proved suitable for the manufacture of wooden shoes.

Table 1 shows the amounts of red alder used in the manufacture of wooden products in 1912, 1928, 1933, and 1940. It includes red alder in the form of logs and bolts, and lumber.

TABLE 1.—*Red alder used in the manufacture of wooden products*
[Thousands of board feet]

Classes of products	1912	1928	1933	1940
Airplanes			19	
Boxes, baskets and crating		30	8	
Car construction and repair		3		
Fixtures		260	10	143
Furniture	1,417	17,836	20,349	37,538
Handles	362	45		48
Instruments, musical		8		
Machinery	6			25
Matches		32		
Patterns and flasks				1
Printing material				8
Radio and phonograph cabinets				17
Rollers, shade and map				38
Sash, doors, general millwork	436	17	39	126
Ship and boat building		2		
Toys		2	2	6
Vehicles, motor				3
Woodenware and novelties	28	123	81	26
Total	2,249	18,358	20,508	[1] 37,979

[1] This figure is made up of 21,155,000 board feet of logs and bolts and 16,824,000 board feet of lumber.

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